

WHAT IS CLAIMED IS:

1. A receptor chip, on which a recombinantly expressed biotinylated receptor protein is immobilized via a factor capable of specifically binding to biotin.
2. A receptor chip according to claim 1, wherein the biotinylated receptor protein is expressed in a bacterial host.
3. A receptor chip according to claim 1, wherein the biotinylated receptor protein is expressed *in vitro*.
4. A receptor chip according to claim 2, wherein the biotinylation of the receptor protein is carried out within a bacterial host.
5. A receptor chip according to claim 2, wherein the biotinylation of the receptor protein is carried out *in vitro* after expression of the protein.
6. A receptor chip according to claim 4, wherein the immobilized biotinylated receptor protein is obtained by refolding a biotinylated receptor protein expressed as an inclusion body within a bacterium.
7. A receptor chip according to claim 6, wherein the refolding is carried out in a solution containing a cyclic carbohydrate cycloamylose and a polyoxyethylene detergent.
8. A receptor chip according to claim 7, wherein the degree of polymerization of the cyclic carbohydrate cycloamylose is 17 to 50 or 40 to 150.

9. A receptor chip according to claim 8, wherein the degree of polymerization of the cyclic carbohydrate cycloamylose is 40 to 150.

10. A receptor chip according to claim 7, wherein the polyoxyethylene detergent is polyoxyethylenesorbitan ester, polyoxyethylenedodecyl ether, polyoxyethyleneheptamethylhexyl ether, polyoxyethyleneisooctylphenyl ether, polyoxyethylenenonylphenyl ether, polyoxyethylene fatty acid ester, or sucrose fatty acid ester.

11. A receptor chip according to claim 6, wherein the refolding is carried out in a solution containing a cyclic carbohydrate cycloamylose and an ionic detergent.

12. A receptor chip according to claim 11, wherein the degree of polymerization of a cyclic carbohydrate cycloamylose is 17 to 50 or 40 to 150.

13. A receptor chip according to claim 12, wherein the degree of polymerization of a cyclic carbohydrate cycloamylose is 40 to 150.

14. A receptor chip according to claim 11, wherein the ionic detergent is cetyltrimethyl ammonium bromide, dodecyl sodium sulfate, sodium deoxycholate, 3-[(3-cholamidopropyl)dimethylammonio]-1-propane sulfonate, hexadecyltrimethyl ammonium bromide, or myristyl sulfo betaine.

15. A receptor chip according to claim 1, wherein the receptor is selected from the group consisting of scavenger

receptors, receptors of the insulin receptor family, receptors of the EGF receptor family, receptors of the PDGF receptor family, receptors of the VEGF receptor family, receptors of the FGF receptor family, growth factor receptors of the NGF receptor family, TGF- β super family receptors, Toll-like receptor family, LDL receptor related protein family, and receptors of the G protein coupled receptor family.

16. A receptor chip according to claim 15, wherein the receptor is a scavenger receptor LOX-1.

17. A receptor chip according to claim 1, adapted for detection using surface plasmon resonance, quartz-crystal microbalance, or mass spectrometer.

18. A method for producing a receptor chip, comprising the steps of:

a) recombinantly expressing a biotinylated receptor protein as an inclusion body within a bacterial host;

b) refolding the inclusion body in a solution containing a cyclic carbohydrate cyclodextrin and a polyoxyethylene detergent to prepare a soluble biotinylated receptor protein; and

c) immobilizing the refolded soluble biotinylated receptor protein to a solid phase via a factor capable of specifically binding to biotin.

19. A method according to claim 18, wherein the degree of polymerization of the cyclic carbohydrate cyclodextrin is 17 to 50 or 40 to 150.

20. A method according to claim 19, wherein the degree of

polymerization of the cyclic carbohydrate cycloamylose is 40 to 150.

21. A method according to claim 18, wherein the polyoxyethylene detergent is polyoxyethylenesorbitan ester, polyoxyethylenedodecyl ether, polyoxyethyleneheptamethylhexyl ether, polyoxyethyleneisooctylphenyl ether, polyoxyethylenenonylphenyl ether, polyoxyethylene fatty acid ester, or sucrose fatty acid ester.

22. A method according to claim 18, wherein the receptor is selected from the group consisting of scavenger receptors, receptors of the insulin receptor family, receptors of the EGF receptor family, receptors of the PDGF receptor family, receptors of the VEGF receptor family, receptors of the FGF receptor family, growth factor receptors of the NGF receptor family, TGF- β super family receptors, Toll-like receptor family, LDL receptor related protein family, and receptors of the G protein coupled receptor family.

23. A method according to claim 22, wherein the receptor is a scavenger receptor LOX-1.

24. A method according to claim 18, wherein the solid phase is adapted for detection using surface plasmon resonance, quartz-crystal microbalance, or mass spectrometer.

25. A method for producing a receptor chip, comprising the steps of:

- a) recombinantly expressing a biotinylated receptor protein as an inclusion body within a bacterial host;
- b) refolding the inclusion body in a solution

NF004

- 69 -

containing a cyclic carbohydrate cycloamylose and an ionic detergent to prepare a soluble biotinylated receptor protein; and

c) immobilizing the refolded soluble biotinylated receptor protein to a solid phase via a factor capable of specifically binding to biotin.

26. A method according to claim 25, wherein the degree of polymerization of the cyclic carbohydrate cycloamylose is 17 to 50 or 40 to 150.

27. A method according to claim 26, wherein the degree of polymerization of the cyclic carbohydrate cycloamylose is 40 to 150.

28. A method according to claim 25, wherein the ionic detergent is cetyltrimethyl ammonium bromide, dodecyl sodium sulfate, sodium deoxycholate, 3-[(3-cholamidopropyl)dimethylammonio]-1-propane sulfonate, hexadecyltrimethyl ammonium bromide, or myristyl sulfo betaine.

29. A method according to claim 25, wherein the receptor is selected from the group consisting of scavenger receptors, receptors of the insulin receptor family, receptors of the EGF receptor family, receptors of the PDGF receptor family, receptors of the VEGF receptor family, receptors of the FGF receptor family, growth factor receptors of the NGF receptor family, TGF- β super family receptors, Toll-like receptor family, LDL receptors related protein family, and receptors of the G protein coupled receptor family.

30. A method according to claim 29, wher in the r ceptor

is a scavenger receptor LOX-1.

31. A method according to claim 25, wherein the solid phase is adapted for detection using surface plasmon resonance, quartz-crystal microbalance, or mass spectrometer.

32. A receptor chip produced by a method according to claim 18 or 25.

33. A method for detecting modified LDL, an abnormal cell, or a bacterium, using a receptor chip according to claim 16.

34. A receptor chip produced by a method according to claim 23 or 30.

35. A method for detecting modified LDL, an abnormal cell, or a bacterium, using a receptor chip according to claim 34.

36. A detection kit, comprising a receptor chip produced by a method according to claim 18 or 25.

37. A detection kit, comprising a receptor chip according to claim 16.

38. A detection kit, comprising a receptor chip produced by a method according to claim 23 or 30.

39. A detection kit, comprising a receptor chip according to claim 34.